

**ArcView 9.x
SUMMER WORKSHOP
In Bismarck, North Dakota
Aug 14-18, 2006**

Learn fundamentals of Geographic Information Systems (GIS) and obtain a site license of ArcGIS for your campus.

Instructors: Mr. Roger Palmer, Mrs. Anita Palmer

Location: Bismarck State College, Technical Arts Computer Lab, Bismarck ND.

Target Audience: Elementary, Secondary and College pre-service and in-service teachers from science, technology, and environmental/social studies education.

Class Meeting Times: 8:00 a.m. - 4:00 p.m.

Registration: \$600

Materials Provided:

- *Mapping Our World—GIS lessons for Educators v.9.0*
Includes curriculum ready to go when you return to your classroom.
- *ArcGIS Tutorial*
- Over 40 hours of hands on exercises and exploration to ensure your success at bringing this technology back into your classroom!
- 2 Graduate College Credits from UND or NDSU available

History/Social Science Content Standards

- Chronological and Spatial Thinking (mapping historical changes to local settings of interest)
- Historical Interpretation (human and physical characteristic of place, cause and effect, land use change)
- Interactively determine new boundary lines based on cultural and physical data
- Show movements of people throughout the 21st century both US and worldwide

Science Content Standards

- Physical Science (properties of light, color, energy, motion, salinity and density)
- Life Science (ecology, land use, plant animal and nutrient cycles, coastal wetlands restoration)
- Earth Science (land, water, atmosphere interactions, drainage basins, geologic processes, Martian science)
- Investigation and Experimentation (active inquiry based approach to the environment we are studying.)

Mathematics Academic Content Standards

- Measurement and Geometry (calculating distances , areas, and volumes, proportional reasoning)
- Mathematical Reasoning (creating algebraic expressions, observing patterns, calculation estimations)
- Graphical Representation of Statistical Concepts

Agriculture Special Interest Strand

At a grassroots level, GIS offers farmers various opportunities to increase production, reduce input costs, and manage the land in their care more efficiently, geography plays a part. In this institute, participants will study applications of GIS with farm level data providing ideas for implementation in Ag class settings. Every potential application of GIS in agriculture is different; however, there are certain underlying principles that remain the same. In this institute, participants will develop skills in the following areas:

- Learn how to access data from free internet sources
- Utilize tools to assist in the integration of a variety of different data types important to farm management
- Expose principals of interpretation and data management of raster based aerial photographs and satellite images
- Understanding principals of light interaction with the ground and the air in order to best utilize aerial and satellite imagery for the greatest yield generation and long term sustainability of a farmers resources
- Develop skills in pattern recognition within remotely sensed imagery to determine ground based causes
- Learn field sampling techniques and visualization tools that most effectively represent nutrient or herbicide/pesticide need and application rates to fields of interest
- Gather principals of GPS operation so as to use locational technology as a tool in managing natural resources

Perhaps the most influential development to expedite technology transfer to agriculture has been the development of GPS. By incorporating GPS into standard farming practices, farmers, researchers, and consultants have been able to improve the precision of existing agronomic management activities by implementing them at a subfield scale. Precision farming and associated variable rate technologies have been the result. Data is collected in a variety of ways. Once mapped, this data, which can include soil characteristics, pest locations, drainage systems, and previous harvest yields, can be used to formulate a location-based prescription for the field management in the coming year.

Precision farming relies heavily on the spatial analysis embedded in GIS. As the costs of modern agricultural practices continue to grow as a result of natural resource price increases, more agricultural legislation, greater environmental awareness, and the need to feed burgeoning human populations, so will the need to optimize agricultural management through the utilization of GIS.

For more information, please visit www.gisetc.com/bismarck_2006.html. To register, click on the link in the left margin entitled *Training Registration* and choose "Bismarck" at the top of the *Training Registration* page. If you have any questions, please call Anita Palmer at 214-533-8376.